

The influence and role of social capital in managing technological change in industry contexts

Lina Marcela Landinez Gomez

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LIST OF ACRONYMS

ACN	Adelaide CleanTech Network
ACT	Australian Capital Territory
ARC	Australian Research Council
ASBEC	Australian Sustainable Built Environment Council
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CLT	Cross Laminated Timber
CRC	Cooperative Research Centres
R&D	Research & Development
RBV	Resource-based View
SME	Small and Medium-sized Enterprise
US	United States
VC	Venture Capital

ABSTRACT

Technological change has been at the centre of economic and industry development debate over many years. Despite the recognised importance of social aspects linked to technology adoption and the transitions to new paradigms, a more detailed exploration of the role of relationships in industry contexts has received less attention.

The overall understanding emerging from the literature on technological change is that factors and social influences for technology adoption are multiple, dynamic and interdependent. Complementing this understanding, the social capital literature contends that the value of relationships in technology adoption relies on the access to and exchange of resources embedded in social structures. Extant research suggests that social phenomenon contributes to technological change, although the intricacies of its occurrence remains in a “black box”.

This thesis integrates the two literature streams – technological change and social capital – with a specific focus on how industry actors engage with the complexities involved in embedding the new technology into various industry contexts. Using the pragmatist perspective, the researcher carried out explorative qualitative research based on the interrogation of actions and interactions of industry actors, and suggests an alternative view of social capital in technological change, beyond the recognised resource view.

The exploration of the social phenomena is done within the context of clean technologies in Australia. It represents a rich context due to the multiple and diverse technologies converging across different sectors and fields of knowledge, the combination of specialised intangible and tangible assets, and the specialised communities of actors. Data was collected using semi-structured and informal interviews, and participant observation, and was analysed using content analysis.

Results indicate that, by adopting a pragmatist approach to the social aspect of technology change, the role of social capital goes beyond the predominant resource-based view approach. The role of social capital has a four-fold influence: (1) on the industry context, (2) the new technology, (3) the interactions among industry actors, and (4) the perception of time. The latter is a new insight derived from this research. Bringing these influences together, results suggest the coexistence of the transactional and transitional role of social capital in technological change.

This research extends the *social capital literature* by suggesting that the *contextuality and temporality of relationships is important*. It does so by identifying the *contextual, technological, relational and temporal influences* and their interplay through the lens of pragmatism. The perception of time, in particular, is identified as a key element in the manageability of social capital. It also contributes to the *technological change literature* by proposing two roles of social capital – transactional and transitional – in the adoption of new technologies. These influences and roles are integrated in a holistic model.

Overall, the thesis is part of a growing body of research and provides significant insights into the role that the professional relationships of industry actors play in the process of new technology adoption. Social capital allows industry actors to (1) adapt to the changes posed by the contextual conditions, and (2) enables them to create new conditions to foster technological transitions.

DECLARATION

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

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Signed

Date: September 29, 2017

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